

Fig. 1

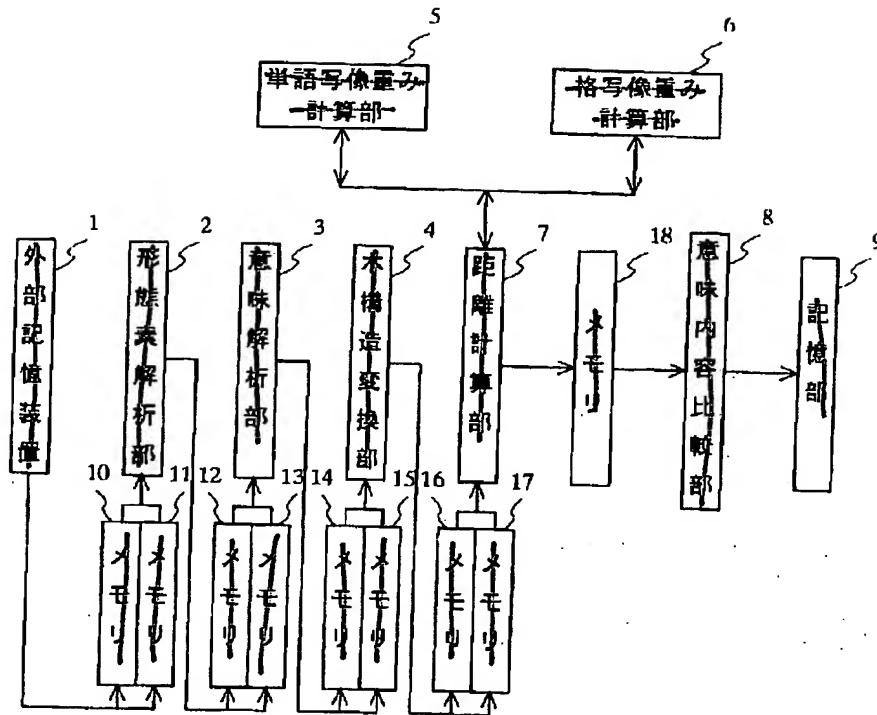


Fig. 2

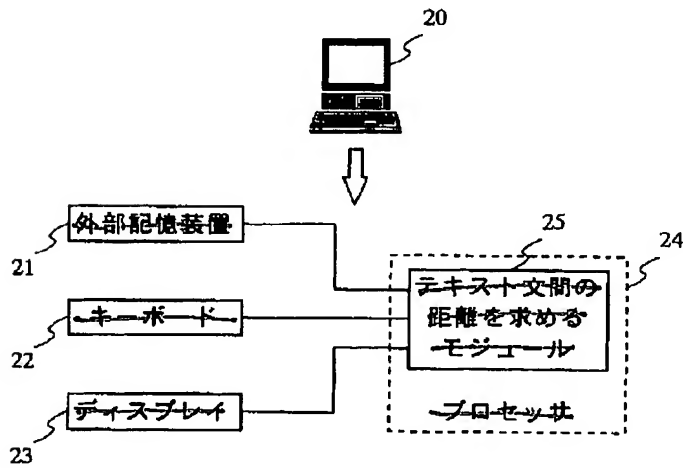


Fig. 1

- 1 external storage apparatus
- 2 morphological analysis section
- 3 semantic analysis section
- 4 tree structure conversion section
- 5 word-mapping-weight calculation section
- 6 case-mapping-weight calculation section
- 7 distance calculation section
- 8 semantic content comparison section
- 9 storage section
- 10~18 memory

Fig. 2

- 21 external storage apparatus
- 22 keyboard
- 23 display
- 24 processor unit
- 25 module for obtaining distance between text sentences

Fig.3

A/DT teacher/NN teaches/VBZ English/NNP to/TO students/NNS

Where, DT indicates Determiner, NN indicates Noun(singular or mass),
VBZ indicates Verb(3rd ps. sing. Present), NNP indicates Proper noun(singular),
TO indicates to, and NNS indicates Noun(plural).

Fig. 3

先生	先生	センセイ	センセイ	名詞一般
は	は	ハ	ワ	助詞係助詞
生徒	生徒	セイト	セイト	名詞一般
に	に	ニ	ニ	助詞格助詞一般
英語	英語	エイゴ	エイゴ	名詞一般
を	を	ヲ	ヲ	助詞格助詞一般
教える	教える	オシエル	オシエル	動詞自立一段基本形
EOS				

Fig. 4

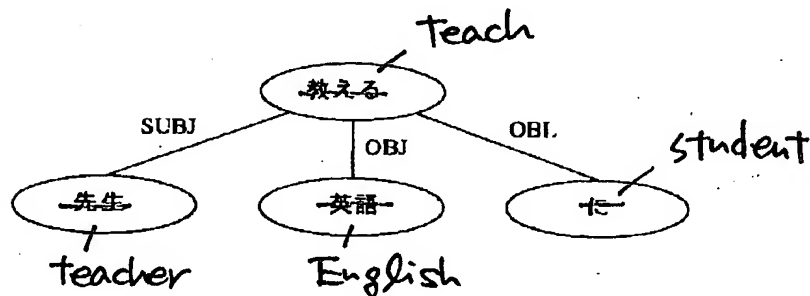


Fig. 5

case category

case category

distance value

格カテゴリ 1	格カテゴリ 1	距離値 11
格カテゴリ 1	格カテゴリ 2	距離値 12
...	...	
格カテゴリ 1	格カテゴリ m	距離値 1m
...	...	
格カテゴリ m	格カテゴリ 1	距離値 m1
格カテゴリ m	格カテゴリ 2	距離値 m2
...	...	
格カテゴリ m	格カテゴリ m	距離値 mm

Fig. 6A

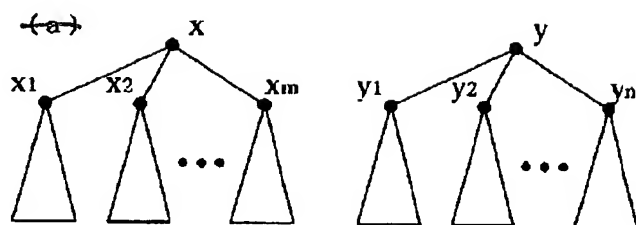


Fig. 6B

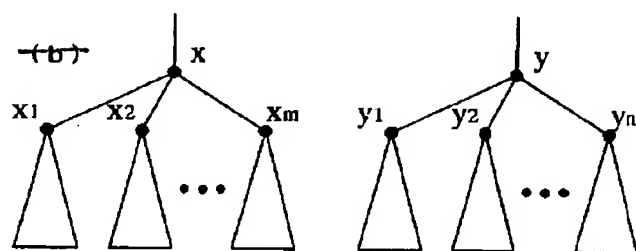


Fig. 6C

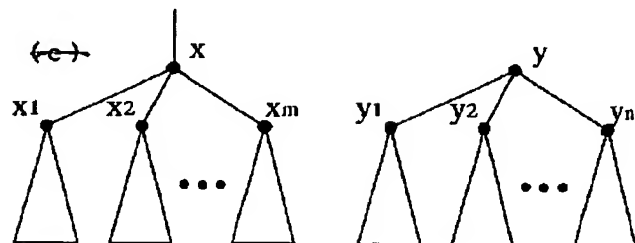


Fig. 6D

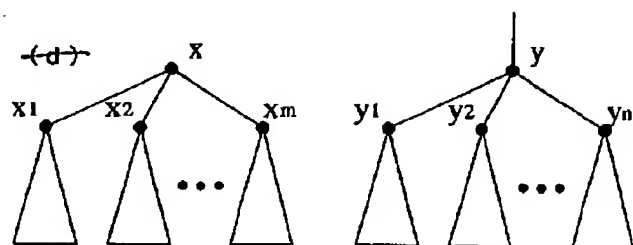


Fig. 7

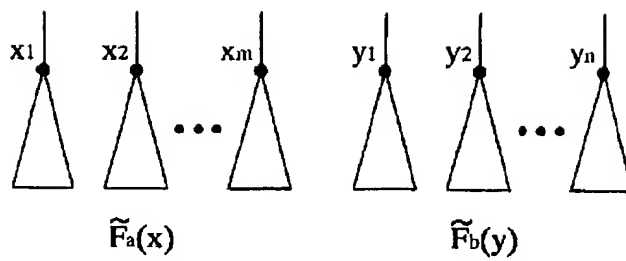


Fig. 8

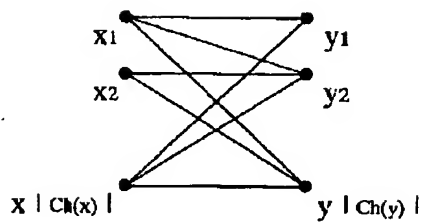


Fig. 9 A

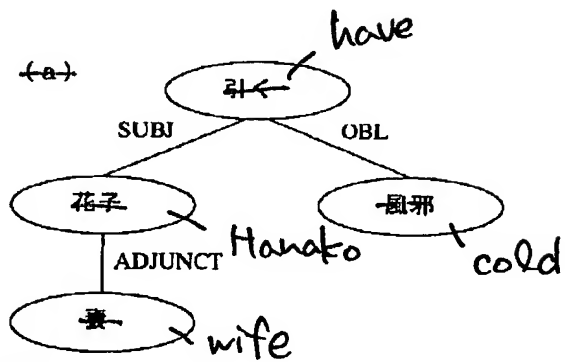


Fig. 9B

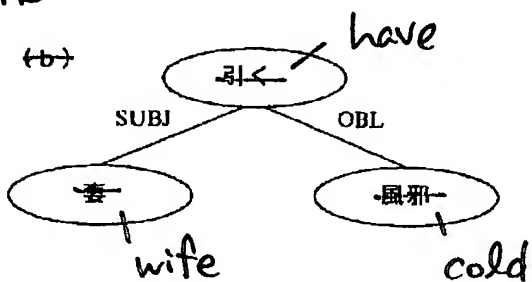


Fig. 10

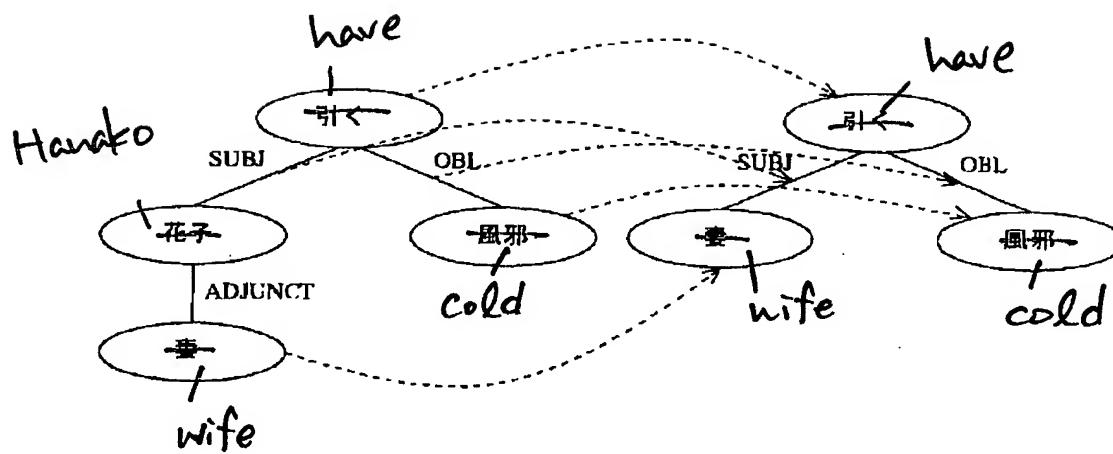


Fig. 11A

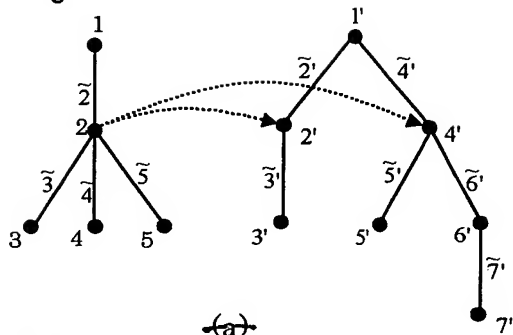


Fig. 11B

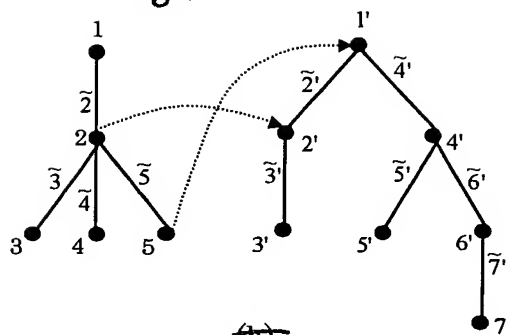


Fig. 11C

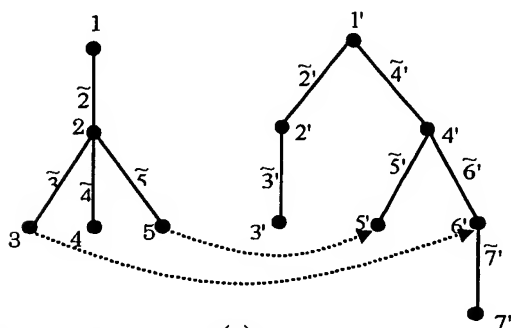


Fig. 11D

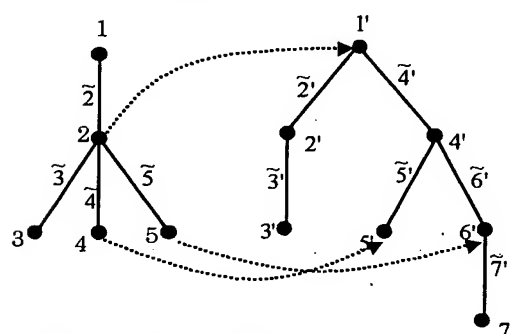


Fig. 11E

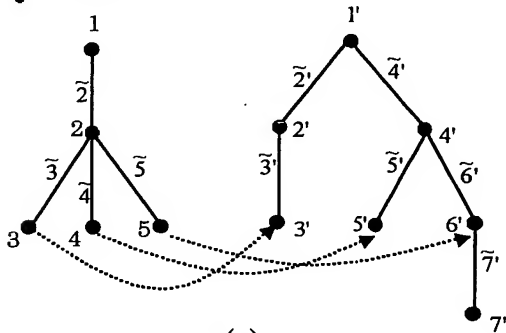


Fig. 11F

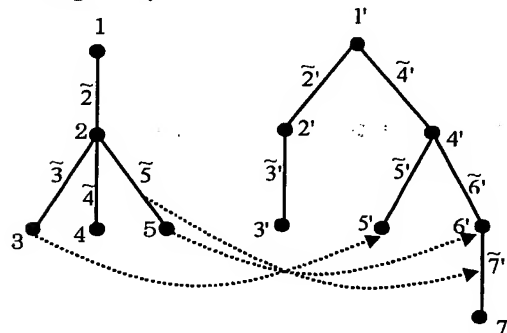


Fig. 11G

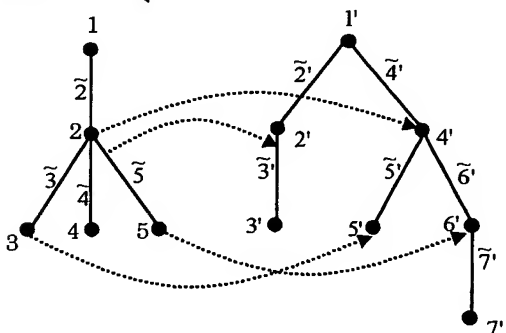


Fig. 11H

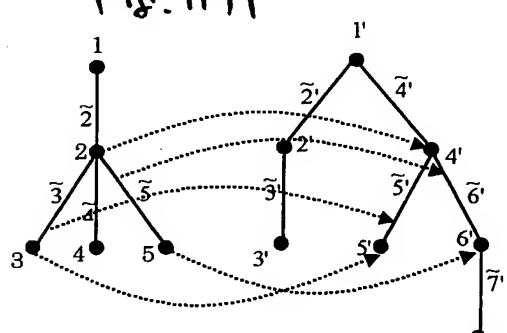


Fig. 12

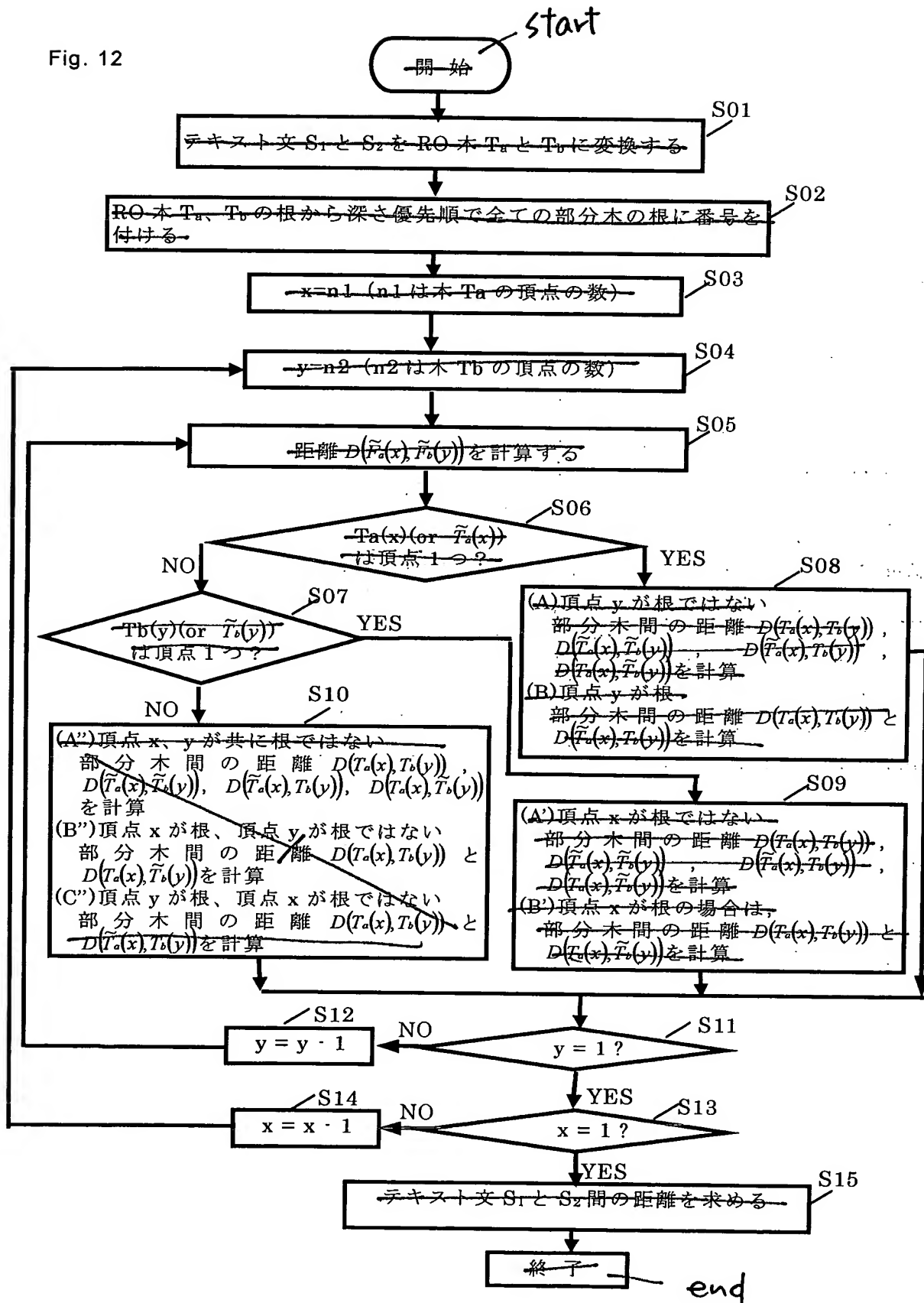


Fig. 12

S01 convert text sentences S1 and S2 into RO trees Ta and Tb
 S02 allotting numbers to roots of all subtrees of the RO trees Ta and Tb in depth first order from root of the RO tree
 S03 $x = n1$ where n1 denotes number of vertexes in the tree Ta
 S04 $y = n2$ where n2 denotes number of vertexes in the tree Tb
 S05 calculate a distance $D(\tilde{F}_a(x), \tilde{F}_b(y))$
 S06 Does $T_a(x)$ (or $\tilde{T}_a(x)$) consist of one vertex?
 S07 Does $T_b(y)$ (or $\tilde{T}_b(y)$) consist of one vertex?
 S08 (A) vertex y is not root
 Calculate distances between subtrees $D(T_a(x), T_b(y))$, $D(\tilde{T}_a(x), \tilde{T}_b(y))$, $D(\tilde{T}_a(x), T_b(y))$, and $D(T_a(x), \tilde{T}_b(y))$.
 (B) vertex y is root
 calculate distances between subtrees $D(T_a(x), T_b(y))$ and $D(\tilde{T}_a(x), T_b(y))$
 S09 (A) vertex x is not root
 Calculate distances subtrees $D(T_a(x), T_b(y))$, $D(\tilde{T}_a(x), \tilde{T}_b(y))$, $D(\tilde{T}_a(x), T_b(y))$, and $D(T_a(x), \tilde{T}_b(y))$
 (B) vertex x is root
 Calculate distances subtrees $D(T_a(x), T_b(y))$ and $D(T_a(x), \tilde{T}_b(y))$

S10 (A) vertexes x and y are not root

Calculate distances between subtrees

$D(T_a(x), T_b(y))$, $D(\tilde{T}_a(x), \tilde{T}_b(y))$, $D(\tilde{T}_a(x), T_b(y))$, and $D(T_a(x), \tilde{T}_b(y))$

(B) vertex x is root and vertex y is not root

Calculate distances subtrees $D(T_a(x), T_b(y))$ and

$D(T_a(x), \tilde{T}_b(y))$

(C) vertex x is not root and vertex y is root

calculate distances between subtrees $D(T_a(x), T_b(y))$ and

$D(\tilde{T}_a(x), T_b(y))$

S15 calculate distance between the text sentences S1 and S2 .

Fig. 13

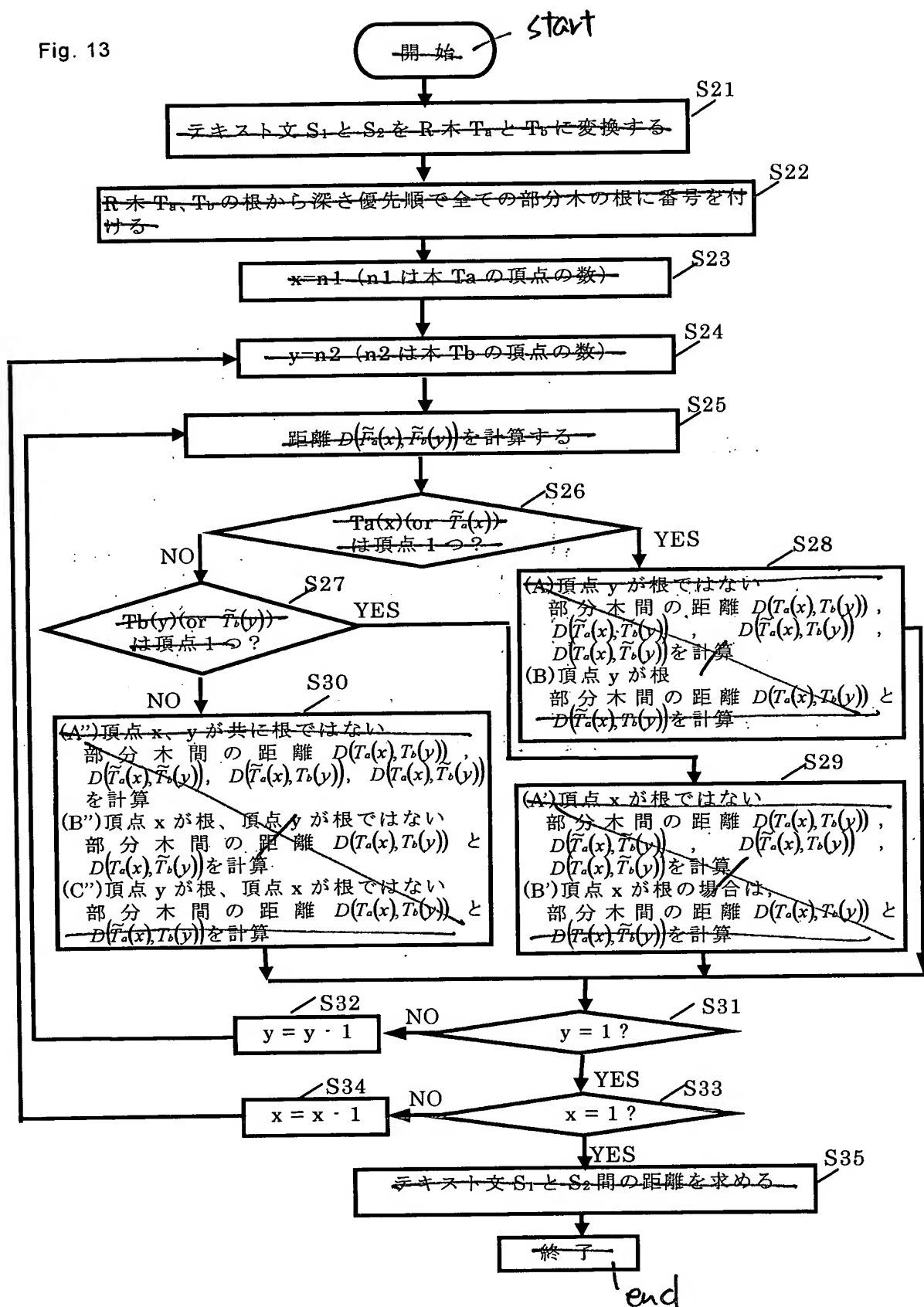


Fig. 13

S21 convert text sentences S1 and S2 into R trees T_a and T_b

S22 allotting numbers to roots of all subtrees of the R trees T_a and T_b in depth first order from root of the R tree

S23 $x = n1$ where $n1$ denotes number of vertexes in the tree T_a

S24 $y = n2$ where $n2$ denotes number of vertexes in the tree T_b

S25 calculate a distance $D(\tilde{F}_a(x), \tilde{F}_b(y))$

S26 Does $T_a(x)$ (or $\tilde{T}_a(x)$) consist of one vertex?

S27 Does $T_b(y)$ (or $\tilde{T}_b(y)$) consist of one vertex?

S28 (A) vertex y is not root
 Calculate distances between subtrees $D(T_a(x), T_b(y))$, $D(\tilde{T}_a(x), \tilde{T}_b(y))$, $D(\tilde{T}_a(x), T_b(y))$, and $D(T_a(x), \tilde{T}_b(y))$

(B) vertex y is root
 calculate distances between subtrees $D(T_a(x), T_b(y))$ and $D(\tilde{T}_a(x), T_b(y))$

S29 (A) vertex x is not root
 Calculate distances subtrees $D(T_a(x), T_b(y))$, $D(\tilde{T}_a(x), \tilde{T}_b(y))$, $D(\tilde{T}_a(x), T_b(y))$, and $D(T_a(x), \tilde{T}_b(y))$

(B) vertex x is root
 Calculate distances subtrees $D(T_a(x), T_b(y))$ and $D(T_a(x), \tilde{T}_b(y))$

S30 (A) vertexes x and y are not root

Calculate distances between subtrees

$D(T_a(x), T_b(y))$, $D(\tilde{T}_a(x), \tilde{T}_b(y))$, $D(\tilde{T}_a(x), T_b(y))$, and $D(T_a(x), \tilde{T}_b(y))$

(B) vertex x is root and vertex y is not root

Calculate distances subtrees $D(T_a(x), T_b(y))$ and

$D(T_a(x), \tilde{T}_b(y))$

(C) vertex x is not root and vertex y is root

calculate distances between subtrees $D(T_a(x), T_b(y))$ and

$D(\tilde{T}_a(x), T_b(y))$

S35 calculate distance between the text sentences S1 and S2